

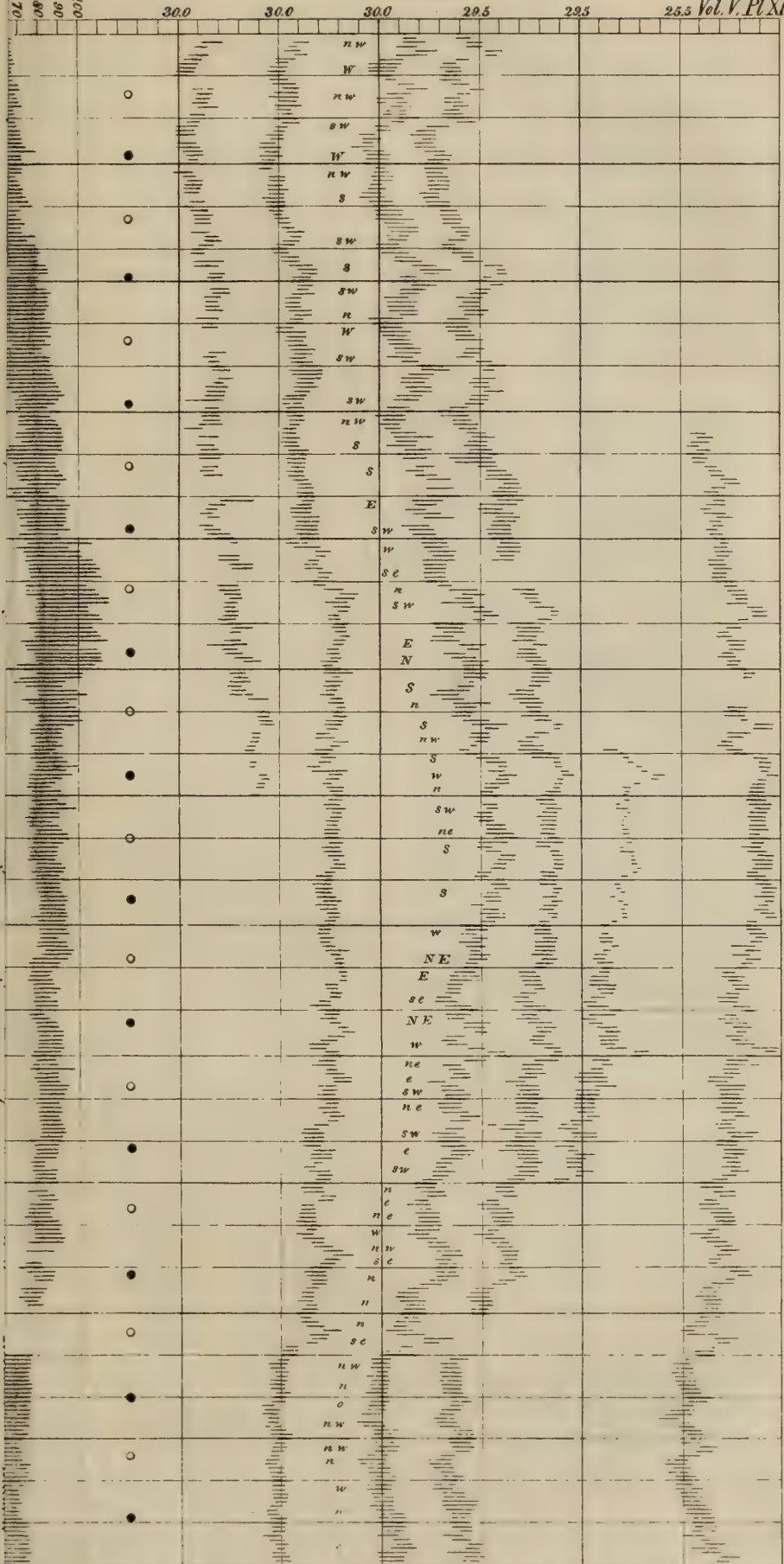
XIII.—*A Comparative view of the daily range of the Barometer in different parts of India.* By JAMES PRINSEP, *Sec. As. Soc. &c.*

The friends who have for the last two years favored me with copies of their Meteorological Registers, have doubtless accused me of a most ungracious requital of their labours, in the long slumber to which they have apparently been devoted in my editorial eseratoire! Such is not absolutely the true state of the case; but the number attached to the accompanying plate* will, I fear, testify against me to the extent of having kept back for nearly a year, the curious facts that had been elicited from the possession of so many valuable records of the weather.

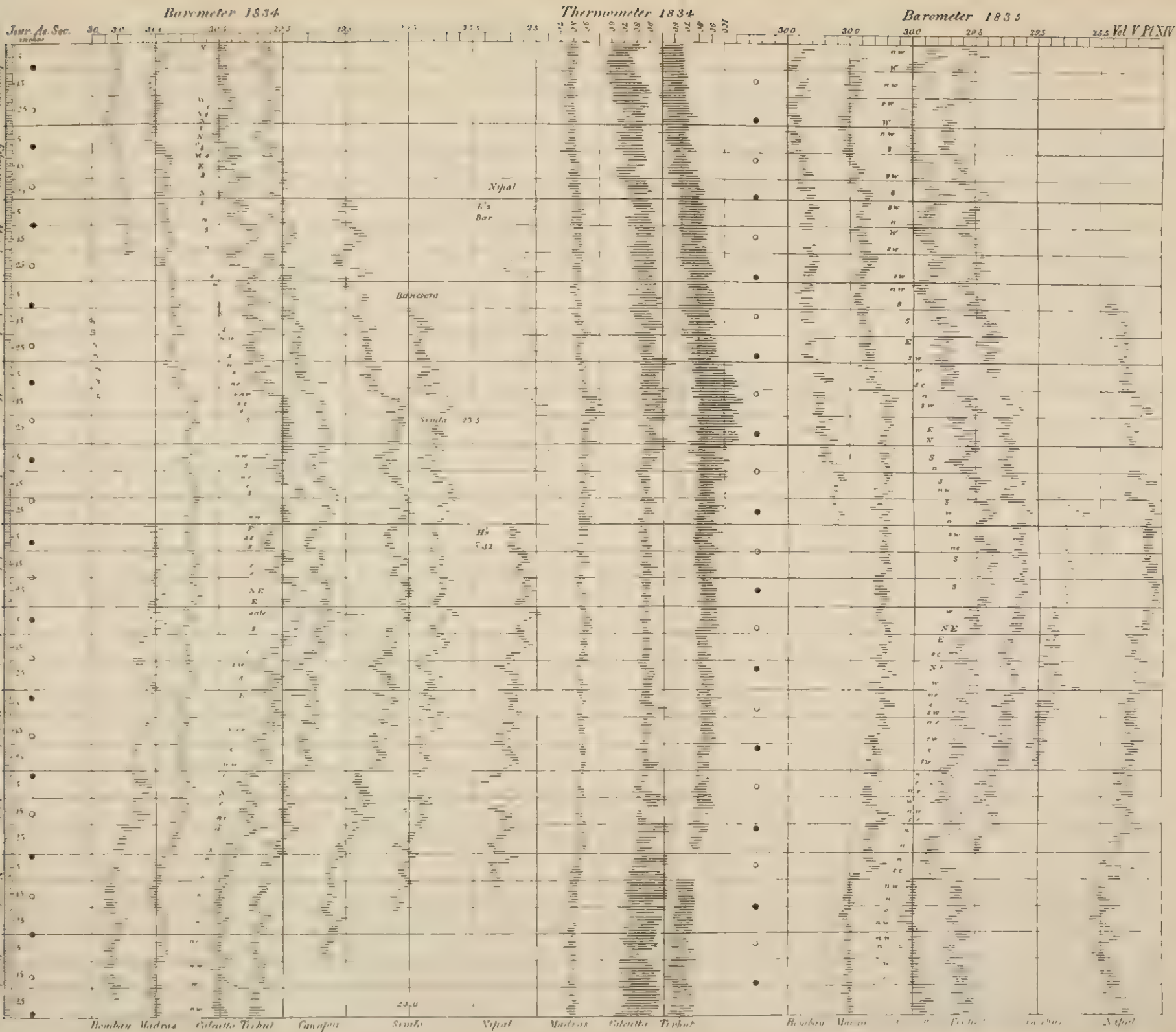
The fact is, that the prompt attention with which my appeal was answered by observers of the weather in numerous parts of India, served as a check to the immediate publication of the materials supplied. The very voluminous dimensions of such registers, and their dry and unperusable nature, even by the few who would like well to consult them, set me about contriving some method of condensing their results into convenient compass, and exhibiting them to the eye in a manner more perspicuous than could possibly be accomplished by a mass of mere figures.

The usual form of a diagram of zigzag lines from point to point would apply tolerably well to a series of single daily observations, taken at a particular hour, and would trace out in a gently undulating curve, the course of annual variation; but if made to embrace the double daily oscillation, now well known to be steadily pursued by the Barometer in intertropical climates, it was evident that the alternations would be too confused on a small scale to be followed pleasantly by the eye. A slight modification suggested itself, as calculated to remove all objections to this mode of displaying the phenomena, without taking in any degree from the accurate notation of the fixed points of observation, while it represented more palpably the amount of daily oscillation. The modification to which I allude will be readily understood by inspection of Plate XIV. It consists in breaking the connection between the consecutive days, and merely laying off, in short parallel lines, the interval between the maximum and minimum readings of the instrument. The proximity of the lines enables the eye to fancy an imaginary line drawn centrally through them to represent the mean course, without the necessity of drawing it, while errors of the tenth of an inch, so liable to occur, and so difficult of detection in a series of figures, became at once obvious and remediable. The chief

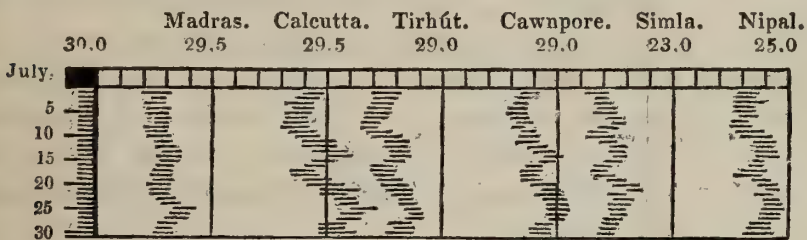
* It was first printed as Plate IX. subsequently altered to XIV.



Bombay Madras Calcutta Tirhut Cawnpur Nepal



advantage, however, of the plan of parallel lines was, that type might be adapted to express the observations with as much facility as to a figured statement. Having the brass rules of my calendric scales already divided according to the days of the year, it only would be requisite to cast a quantity of rules of the thickness of one day, and exactly one-tenth of an inch in breadth; the printing surface of some being retained of the full length, and that of others reduced successively one hundredth, two hundredths, three hundredths, &c., so that nine varieties, and a large supply of blanks or quadrates of the same dimensions, would be sufficient to lay off any series correct to the hundredth of an inch, which is ample for most purposes. I here give a sample of this mode of registry in type, although, as I had previously engraved a copper-plate divided for the purpose, I have not, on the present occasion, made any use of the typographic plan, in spite of the far greater expedition and precision of which it is capable.



It is merely necessary to denote by figures at the top, the value of the neutral line from which each set of readings is to be estimated right and left, in some even division of the inch, as 29.50 inch for *Calcutta*; 29.00 inch for *Tirhut*, or 25.00 for *Nipal*, &c. To reduce the lines into figures when requisite, an ivory inch scale may be applied, but this will seldom be necessary if such linear tables are accompanied by monthly abstracts in the ordinary form: the chief advantage of the lines being to shew at a glance the variations of pressure or other phenomena, during the month, in a very small compass, and for many localities at the same time.

Having thus explained the principles upon which the accompanying plate was filled up,—a work of no small patience by the way, seeing that it contains 13 columns of 365 double entries, or nearly 10,000 individual measurements laid off by scale to the hundredth of an inch,—I will proceed to notice, first, the authorities whence the various columns are derived; and, secondly, the instructive and highly curious facts it discloses.

The *Madras* column is extracted from the registers published by Mr. TAYLOR, the H. C.'s Astronomer at *Madras*, in the Journal of the Literary Society at that place. For the *Bombay* column I am indebted

to my brother Assay Master, Mr. NOTON, who kindly sent me copies of some registers made mostly during his absence. The series is broken in many places, and the observations between June and October, 1834, were evidently taken by an inexperienced hand. The single line marked *Socotra* is from the register kept by Captain HAINES while engaged in the survey of the island. As the hours chosen by him were not those of the maximum and minimum, I thought it best to confine myself to the noon readings as a mean of the day. The *Calcutta* columns are taken from my own registers, published in this Journal. The *Tirhát* diary was kept at my request by my cousin, the late Mr. THOMAS DASHWOOD, Judge at *Mozafferpur*, who kept it up unremittedly for three years and a half, indeed until a very few days before his sudden and lamented death*. One year of this series has already been published at length in the 2nd and 3rd volumes of the Journal. For the *Cawnpore* register I am beholden to Colonel G. POLLACK, C. B. of the artillery. This series is unfortunately intermittent, from his having been obliged to send his barometer to *Calcutta*, in December, 1834 : which, however, furnished an opportunity of comparing it with my own standard. A little to the right of the *Cawnpore* line for 1834, are entered the observations of Mr. RITCHIE at *Bancoora*, for April and May, also abruptly terminated by his falling an untimely victim to the climate.

The last series to the right I owe to Captain ROBINSON of the *Nipal* Residency ; it was made partly with his own and partly with Mr. HODGSON'S instrument, which will account for the shifting of the index point in June, 1834. In March also two adjustments were attempted by boiling the tube. These do not affect the utility of the register, when once noted. Captain ROBINSON'S tables are invaluable from the number of periods during the day they embrace, but these will be alluded to hereafter in summing up the figured abstracts.

I was disappointed of getting any observations from the western hills, (the seat of the grand trigonometrical operations still going forward in those parts,) until after the plate had been long finished and the whole edition struck off, when Mr. H. S. BOULDERSON of *Moradabad* kindly transmitted me a file of observations taken by his brother, Mr. S. M. BOULDERSON, at *Simla*, between May and November, 1834. Rather than lose the valuable additional evidence which this register, at a position elevated about 7000 feet, and situated 400 miles to the west of *Katmandhu*, would afford, I have caused it to be

* An apoplectic fit terminated his life of exemplary public service and private worth, at the very moment of his quitting employment, and retiring home to devote his latter days to the education of his family in England.

inserted, under the *Bancoora* column, heading the index line 23.50, to correspond with the average range of the barometer at *Simla** and have reprinted the plate.

The first feature in the table that attracts attention is an almost perfect parallelism in the march of the barometer at *Calcutta*, *Bancoora*, *Mozafferpur*, *Cawnpore*, *Nipal* and *Simla*—places situated many hundred miles asunder from $22\frac{1}{2}^{\circ}$ to 28° north latitude, and 80° to 88° east longitude, with altogether differently prevailing winds and climates, and opposite geographical features. The same parallelism continues even as far south as *Madras*, but the *excursions* are there much subdued in every respect, and occasional deviations are observable, which seldom or never occur in the three Gangetic lines, except from such a local hurricane as that experienced in the immediate neighbourhood of *Calcutta* on the 3rd August, 1834. Between *Bombay* and *Calcutta*, little conformity of detail can be perceived, though the general direction is symmetrical. There is, however, considerable accordance between *Bombay* and *Madras*, the former having from its higher latitude a wider range of oscillation, both annual and intermediate.

The direction of the wind (at least of the lower stratum) alone seems quite insufficient to account for the barometrical variations, although it is generally true that the mercury rises with the prevalence of northerly, and falls with that of southerly winds, as might be expected from the different specific gravity of a warmer or colder atmospheric column. That the moon also has no regular influence appreciable on the scale of my table, must be, I think, also granted; for as many instances occur of a falling as of a rising barometer at the changes of lunar phases. The course of the thermometer, on the contrary, seems to have a decided connection with that of the barometer. This is exemplified in the comparative uniformity of the *Madras* line, and the increased curvature at other places. For convenience of division I assumed the tenth of an inch, as representing 10 Fahrenheit degrees of temperature. Had I taken double that amount, the general thermome-

* Having the former copy of the plate at hand, I have distributed it detached along with the other, hoping it may attract notice and procure me a fuller collection for some future year.

I have been also favored with a daily barometrical series for 1836 at *Bangalore*, by Dr. MOUNT, but I have reason to think that the instrument used was sluggish in its movements. I trust, however, for the ensuing year, the labours of this zealous observer will be made available by the possession of better instruments. I have further many other broken series from *Assam*, *Kyook Phyoo*, *Candy*, &c. but they are generally wanting in the barometer. A short series was also kept for me by Lieutenant MONTRION, I. N. at the head of the bay in January and February, 1833.

tric curve for the year would have been nearly symmetrical with that of the barometer, except during the rainy season.

It should be remarked, that the daily undulations of temperature for *Calcutta* and *Tirhút*, are the extremes indicated by a register thermometer exposed to night radiation and noonday sun : those for *Madras* are only the variations of morning and afternoon heat in the shaded air. They both, however, but the former more distinctly, shew to the eye the influence of clouds and rain in diminishing the diurnal excursion ; and in this respect a direct accordance is also observable in the reduced diurnal motion of the barometer ; as I long since pointed out to be the case in regard to the *Benares* tables published in the *Asiatic Researches*, vol. XV.

Another material point to be noticed in the plate is the gale of the 3rd of August, when the *Calcutta* barometer dropt down to 28.8 inches passing (on the plate) through the *Tirhút* column, which is only partially affected. There is in all the lines a decided fall at the same period, but only of an ordinary extent, apparently unconnected with the disturbing cause of the *Calcutta* storm. Any who have witnessed the gathering of a north-wester during the calm serenity of a sultry evening, and have watched the turbulence of the clouds and commixture of upper currents prior to the sudden and furious generation of the whirlwind below, will be prepared to consider the hurricanes and gales of longer duration as equally insulated in their origin, only upon a much larger scale of operation. A sudden condensation of aqueous, or perhaps of gaseous matter, whether by electricity or simple cold, would, by drawing upwards toward the vacuous space, the under air, cause a fall in the barometer as certainly as if there were an absolute removal of superincumbent weight, for which there would be no mode of accounting ; and this upward current could not take effect without the production of a horizontal current of corresponding degree and velocity.

The last point of instruction to be gained from the present plate,—and it is a very important one,—is the reliance that may be placed on the measurement of barometrical altitudes taken by comparing the observed height at places so distant as *Cawnpore*, or in the mountainous regions of the *Himálayas* with the register of a stationary instrument at *Calcutta*. I confess I always had misgivings on the comparability *inter se* of such distant readings, until as it were my hand refuted the doubts of my mind. The engraving shews that a dozen contemporaneous observations (that is, observations not made at the same instant, but at the same relative hour), would be ample for fixing the altitude of a place within moderate limits. Moreover, it shews that no reference of an observed height to a fixed unit (as 30 inches), as-

sumed as the barometric zero at the level of the sea, can possibly be trusted: hence the advantage of maintaining a constant register at one or several fixed spots; nay, it may be almost regarded as a public desideratum, where, as in India, the Government has so much to learn of the physical geography of its vast territories.

Want of space has prevented my including in the plate the thermometric columns for 1835; but the temperature does not require such minute discussion as the pressure, for obvious reasons. The hygrometrical phenomena also are rather unsuitable to graphic illustration. The monthly averages to which we must now pass will, it is hoped, be sufficiently comprehensive in these departments to cause no regret at the unavoidable suppression of the daily registers.

Beginning, then, with the Bombay and Socotra series we have the following

*Abstract of Bombay Observations for part of 1834, by Mr. HENDERSON:
for 1835, by Mr. S. FRAZER.*

1834.	Barometer uncorrected.			Thermometer.		
	10 A. M.	Noon.	3 P. M.	10 A. M.	Noon.	3 P. M.
January, .	30.06	30.03	29.98	76.5	77.5	79.2
February, .	30.03	30.00	29.95	77.2	78.7	80.0
March, ..	30.01	29.97	29.93	79.5	85.5	82.0
Barometer reduced to 32°.						
1835.						
January, .	29.974	29.939	29.889	..	Sunday Obs. carent.	
February, .	.893	.907	.853	..	ditto.	
March, ..	.875	.837	.788	from 12th to 16th carent.		
April, ....	.890	.851	.790	16 to 20 ditto.		
May, ....	.779	.752	.736	2, 3, 8 to 10 ditto.		
June, ....	.662	.639	.612			
July, ....	.610	.605	.579			
August, ..	.688	.663	.630			
September	.730	.727	.626			
October, ..	.823	.786	.729			
November,	.935	.941	.900	} 30th Oct. to 3rd Nov. carent		
December,	.980	.957	.902	from the 25th carent.		
Means, ..	29.824	29.800	29.753			

Mr. NOTON, fancying I was only in want of the barometrical series, has omitted to send that of the thermometer or of the weather in general. His own observations for many years on the climate of Bombay are, however, published, and will supply the deficiency when we come to take a general review.

*Abstract of Observations taken on the coast of Socotra, on board the
H. C. S. Palinurus, H. B. HAINES, Commander, in 1834.*

Month.	Barometer at 32°.			Thermometer.			Wind.	Weather.
	8 A.M.	Noon.	8 P.M.	8 A.M.	Noon.	8 P.M.		
January, .	29.429	29.416	29.414	76.7	80.7	79.4	ENE.	cloudy, 7 days rain.
February, .	.405	.396	.395	77.2	80.5	78.5	ENE.	hazy and squalls.
March, ..	.393	.377	.370	75.5	81.0	80.9	NE.	calms—clear.
June, ....	.093	.087	.077	86.9	91.5	90.0	SW.	hard gales.
July, ....	.089	.082	.082	84.0	87.0	86.2	SW.	hard gales.

The last two months' journal contains also the readings at 4 A. M. sunrise, 3 P. M. and sunset; but necessarily on board a ship in heavy weather, the diurnal oscillations cannot fairly be estimated.

We may now pursue the same course with Mr. DASHWOOD's tables for *Tirhút*, from December, 1833, (prior to which they have already been inserted,) first only reducing the barometric altitudes to 32°. Mr. DASHWOOD, following my recommendation of tapping the tube before reading off, has, as I expected, made the daily oscillation considerably greater than in his first register. Thus also my new standard barometer is found to oscillate full a fifth more than the old, so that the real external change of pressure during the day is hitherto only approximately known, and may perhaps be nearer $1\frac{1}{2}$ than 1-tenth of an inch.

Monthly Abstract of Meteorological Observations, kept daily at Mozafferpúr in Tirhút, from the 1st December, 1833, to the 31st May, 1836, by the late THOMAS DASHWOOD, Esq. C. S.

Month.	Barometer reduced to 32°.		Thermometer in doors. outside.				Winds Number of days.				Days Rain.	Weather.		
	9 $\frac{3}{4}$ A M inch.	4 $\frac{1}{2}$ P M inch.	9 $\frac{3}{4}$ A M °	4 $\frac{1}{2}$ P M °	Max. °	Min. °	W.	E.	N.	S.				
1833.														
December, ..	29.662	29.570	62.0	64.1	70.1	54.8	18	13	0	0	8		fogs and showery.	
1834.														
January, ..	29.670	29.572	58.0	61.0	68.5	48.5	20	10	1	0	0		clear, cold.	
February, ..	29.620	29.531	64.6	69.2	75.5	56.4	14	12	1	1	1		fair, changing.	
March,	29.550	29.439	72.0	76.4	85.4	63.7	16	14	1	0	2		W. in day, E. at night.	
April,	29.470	29.367	77.4	78.6	91.2	69.4	11	18	1	0	0		do. 4 northwesterns.	
May,	29.281	29.195	84.2	85.5	108.6	75.3	0	31	0	0	3		wind strong at night.	
June,	29.204	29.133	83.7	85.4	95.4	76.8	1	29	0	0	14		Cloudy and squally.	
July,	29.252	29.167	84.0	85.6	92.3	77.7	0	30	0	0	15		earthquake on 11th.	
August,	29.280	29.194	83.8	85.4	90.3	77.9	7	21	2		12		changeable.	
September, ..	29.373	29.264	83.5	81.7	89.8	78.0	3	20	0	0	10		fair, earthquake.	
October,	29.525	29.450	79.5	81.0	85.2	74.0	9	9	0	0	10		gale on 4th, wet, fine.	
November, ..	29.722	29.621	71.5	74.0	73.8	57.3	23	5	2	0	0		fine, clear.	
December, ..	29.762	29.660	65.1	67.8	70.7	53.6	21	10	0	0	3		hazy, fogs in morn.	
1835.														
January,	29.775	29.687	59.5	63.1	65.5	44.5	22	9	0	0	1		do. clear days.	
February, ..	29.761	29.672	65.0	69.6	72.8	52.8	12	15	0	1	4		4 squalls, fine.	
March,	29.675	29.601	71.5	76.5	85.0	57.7	25	4	0	0	2		cloudy, fair.	
April,	29.659	29.528	78.4	80.2	93.9	66.6	14	16	0	0	4		frequent squalls.	
May,	29.472	29.365	82.4	83.7	95.3	74.1	5	26	0	0	4		several storms.	
June,	29.377	29.306	83.0	84.6	93.9	74.1	0	29	0	1	10		very heavy hail 14th.	
July,	29.331	29.268	81.9	82.5	88.8	73.9	10	17	1	0	21		constant rain.	
August,	29.399	29.310	82.6	84.1	88.2	73.1	12	17	1	0	14		3 storms, fair.	
September, ..	29.494	29.380	81.5	83.6	86.8	71.3	3	25	1	0	6		6 northwesterns, fair.	
October,	29.605	29.518	78.1	80.4	82.0	64.8	18	11	2	0	1		light winds, fair.	
November, ..	29.829	29.741	67.8	71.7	72.4	53.6	16	5	1	0	0		clear, 1 fog.	
December, ..	29.772	29.671	61.0	64.6	68.4	47.0	13	18	0	0	2		heavy fogs, 1 squall.	
1836.														
January, ..	29.775	29.678	56.8	60.6	65.1	41.4	21	10	0	0	1		natural ice 3 nights.	
February, ..	29.697	29.593	61.8	65.5	72.2	48.3	12	17	0	0	6		changeable, fair.	
March,	29.499	29.393	73.6	77.2	86.5	60.2	7	14	2	0	2		fair, 2 storms.	
April,	29.409	29.291	78.9	80.4	94.4	66.8	11	15	0	0	1		W. morn, E. night.	
May,	29.275	29.185	83.3	85.1	97.8	73.5	3	22	0	0	6		clear, squally.	
Means, 1833.	29.433	29.348	76.0	79.0	87.0	69.1	132	232	?	?				
Means, 1834.	29.475	29.383	75.6	77.6	85.5	67.4	125	209	8	1	70			The depth of rain was not noted.
Means, 1835.	29.595	29.503	76.1	77.1	82.6	62.8	150	192	6	2	69			
Mean of 3 ys.	29.501	29.411	75.9	77.9	85.4	66.4								
General mean,	29.456		76.9		75.9		$\frac{2}{8}$ W.	$\frac{3}{5}$ E.						

The *Tirhút* Barometer had not been compared with my standard.

The *Cawnpore* table needs no particular remark. The daily notices of the weather are very full, but unfortunately there is no possibility of abbreviating them. I have attempted in some measure to meet this difficulty, as in the *Tirhut* tables, by numbering the days of each prevailing wind, and of rain. The predominance of easterly winds strikes me as rather anomalous during the hot season; but I have witnessed the same irregularity at *Benares*. The hot westerly wind is purely a day breeze, and very rarely extends to the night, which is generally calm, or has a light air in the opposite direction.

Abstract of a daily Register of the Weather at Cawnpore, kept by Col. G. POLLOCK, C. B. during the years 1834 and 1835.

Month.	10 A. M.			4 P. M.			Wind, days.				Rain days.	
	Barometer. at 32°.	Thermo- meter.		Barometer. at 32°.	Thermo- meter.		N.	E.	S.	W.		
		House.	Air.		House.	Air.						
1834.	inches											
Jan.....												
Feb. ..	29.693	—	—	—	—	—	6	—	8	3	only 15 days observed.	
March,	29.50	77.1	—	—	—	4	12	—	14	1	clear, one storm.	
April, ..	29.403	80.0	—	—	—	5	9	—	10	3	terrific dust, storm 15th	
May, ..	29.217	86.1	—	29.114	86.5	—	—	14	1	15	wind chgd. to W. at noon	
June, ..	29.125	86.5	90.4	29.045	86.7	94.1	2	18	—	11	7	do. frequent squalls.
July, ..	29.126	84.8	85.2	29.053	85.8	87.0	1	25	—	5	5	a few light showers.
Aug. ..	29.180	84.3	84.6	29.108	86.0	87.1	4	14	1	12	13	wind variable, cloudy.
Sept....	29.271	82.5	82.1	29.189	83.3	83.9	3	20	1	6	17	much rain, cloudy.
Oct.....	29.469	77.5	77.2	29.375	80.5	80.7	10	14	—	7	4	wind strong, 1 storm.
Nov.....	29.640	71.2	72.8	29.570	76.3	77.7	3	1	1	8	—	13 days obs. clear.
Dec. ..	—	64.6	64.0	—	69.3	71.0	20	5	1	5	4	clear; rain at Xmas.
1835.												
Jan.....	—	59.5	58.1	—	67.7	69.5	6	4	—	2	—	strong winds, cloudless.
Feb. ..	—	64.0	64.3	—	71.0	74.7	8	6	2	12	2	light clouds, 1 squall.
March,	—	70.7	72.9	—	73.8	81.4	3	8	3	17	3	strong winds & squalls.
April, ..	—	77.8	85.0	—	78.3	92.1	6	10	6	8	9	dust storms, cloudless.
May, ..	—	82.0	93.0	—	81.8	100.0	1	18	3	9	5	unusually hot.
June, ..	29.243	82.8	87.4	29.237	83.5	93.0	2	19	2	7	13	rains begun 16th.
July, ..	29.285	81.8	86.2	29.267	83.3	88.2	1	6	7	17	11	heavy clouds, rain light.
Aug. ..	29.432	82.4	87.6	29.360	83.4	90.3	3	13	4	11	14	much rain, cloudy.
Sept....	29.543	81.0	95.5	29.445	81.7	88.6	9	15	1	5	8	cleared on the 25th.
Oct.....	—	—	—	—	—	—	—	—	—	—	—	—
Nov. {	29.656			29.573								Col. Pollock's Barom.
	.922	69.7		.850	74.8							Dr. Dempster's do.
	.870			.751								Mr. Campbell's do.
	.676			.87								Col. Pollock's do.
Dec. {	.955	64.6		.70	70.0							Dr. Dempster's do.
(9 dys.)	.898			.782								Mr. Campbell's do.

The error of Colonel POLLOCK's instrument when compared with my standard in April, 1835, was only — .059. It is difficult therefore to account for its standing so much lower than Dr. DEMPSTER's, and Mr. CAMPBELL's, unless some accident happened to it on its return to Cawnpore.

The *Bancoora* series, being limited to two months, will not admit of an abstract; we may therefore pass to the *Nipal* tables.

Abstract of Daily Barometrical Observations, made at Katmandhu in Nepal, by Capt. G. H. ROBINSON.

Months.	Mean height of Barometer reduced to 32° for the hours													Maxima.	Minima.	Daily Range.
	A.M.					P.M.										
	7	8	10	11	12	1	2	3	4	5	6	7	8			
1833.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.			in.
July, .....	..	..	..	..	..	..	..	..	..	..	..	..	..	25.126	.062	.063
Aug.....	..	..	..	..	..	..	..	..	..	..	..	..	..	.148	.083	.060
Sept.....	..	..	..	..	..	..	..	..	..	..	..	..	..	.225	.153	.064
1834.																
July,	25.168	.176	..	.162	.144	.121	.101	..	.070	.073	.119	..	.129	..	..	.088
Aug.....	.171	.185	..	.168	.159	.127	.109	..	.096	.101	.053	..	.154	..	..	.074
Sept.....	.257	.270	..	.259	..	.206	.168	..	.161	.174	.233	..	.189	..	..	.109
Oct.....	.325	.344	..	.333	.310	.279	..	.235	.233	.240	..	.264	..	..	..	.111
Nov.....	.413	.440	..	.435	.423	.328	..	.328	.354	..	..	.381	..	..	..	.086
1835.																
April, ..	.401	..	..	..	.395	..	.355	..	.317	..	..	.341	..	.399	.323	.074
May, .....	.305	..	..	..	.292	..	.250	..	.221	..	..	*.240	..	.301	.220	.071
June, .....	.198	..	..	..	.170	..	*.125	..	*.114	..	..	*.147	..	.288	.112	.073
July,	*.142	..	.149	..	.125	..	*.184	..	*.073	..	..	*.102	..	.149	.072	.074
Aug.....	*.233	..	.240	..	.219	..	*.169	..	*.153	..	..	*.178	..	.87	.106	.078
Sept.....	*.315	..	.320	..	.289	..	*.238	..	.218	..	..	*.238	..	.319	.217	.093
Oct.....	*.084	..	.407	..	.367	..	.313	..	.295	..	..	.305	..	.392	.291	.092
Nov.....	*.513	..	.541	..	.499	..	.450	..	.425	..	..	.44	..	.539	.428	.098
Dec.....	*.457	..	.493	..	.449	..	.390	..	.383	..	..	.417	..	.493	.376	.113

Abstract of Thermometrical Observations, made simultaneously with the above.

Months.	Thermometer inside the house.										Thermometer outside.					Rain.	
	A.M.					P.M.					A.	M.	P.	M.			
	7	8	10	11	12	1	2	4	5	6	8	7	10	12	2		4
1833.																	
July, ..	75.2	..	..	..	..	..	79.2	..	..	..	..	69.3	..	..	84.6	..	9,517
Aug... ..	73.9	..	..	..	..	..	76.7	..	..	..	..	69.6	..	..	81.8	..	13,720
Sept. . .	73.4	..	..	..	..	..	77.1	..	..	..	..	67.9	..	..	78.5	..	3,822
1834.																	
July, ..	74.6	75.4	..	76.8	77.4	77.9	78.3	77.9	77.7	77.2	77.0	..	..	..	..	..	14,436
Aug... ..	73.7	74.5	..	76.3	74.0	77.8	78.0	77.4	76.7	76.9	76.3	..	..	..	..	..	12,380
Sept. . .	73.3	73.9	..	76.3	..	77.9	78.3	78.1	77.3	75.3	77.6	..	..	..	..	..	11,292
Oct... ..	66.2	66.2	..	69.2	69.8	70.2	70.7	71.4	71.3	70.2	..	..	..	..	..	..	9,930
Nov.....	60.0	61.7	..	63.1	63.0	66.1	..	65.0	..	65.2	..	..	..	..	..	..	1,280
1835.																	
April, ..	64.1	..	..	..	67.7	..	67.7	68.5	..	..	..	54.7	..	72.8	74.3	71.8	4,352
May,	69.3	..	..	..	71.3	..	73.2	74.2	..	..	..	62.9	..	77.1	78.0	77.1	4,207
June,	73.3	..	..	..	75.3	..	*76.2	*76.4	..	..	..	69.3	..	80.3	79.9	*76.9	7,941
July,	*73.8	..	75.2	..	75.7	..	76.7	*76.4	..	..	..	*73.4	77.6	81.0	79.5	*74.5	14,677
Aug... ..	*73.0	..	74.2	..	75.2	..	*76.5	*76.0	..	..	..	*69.0	76.1	79.8	*79.6	*74.9	12,891
Sept.....	*71.4	..	72.8	..	74.1	..	75.5	75.6	..	..	..	66.6	74.0	76.1	76.1	74.0	4,416
Oct... ..	*64.0	..	65.8	..	67.6	..	69.7	70.8	..	..	..	*55.0	64.7	8.8	71.1	70.6	1,608
Nov.....	*55.4	..	56.5	..	58.4	..	60.3	61.5	..	..	..	*40.5	50.7	58.4	63.7	60.8	0,063
Dec... ..	*50.6	..	50.8	..	51.8	..	53.3	54.5	..	..	..	*34.5	41.9	49.3	54.4	54.1	1,211

The items marked with an asterisk were taken half an hour later than the hour indicated at the top of the column.

In July, August and September, 1833, the register notes only the minima and maxima temperatures, but to save room I have supposed these to accord with the hours of 7 A. M. and 2 P. M.

Of the two barometers registered at *Katmandhu*, that of the Resident has been preferred, for 1834. Capt. ROBINSON'S tube for that year stood a quarter of an inch lower, and was hardly sensible to the diurnal oscillation. After boiling it in the month of September, however, it rose to within .02 of H.'s, and exceeded the latter in oscillation by .03. This and the circumstance of the hour of maximum 9 to 10 A. M. being unfortunately omitted among the numerous periods of the day selected for register, render not only the absolute amount of diurnal motion still uncertain for *Nipál*, but also prevent our calculating the annual average. I hope the series I am now promised by Dr. A. CAMPBELL for 1837 will supply the want.

I reserve for a separate notice the calculated elevations connected with the *Nipál* series, as they are affected by the error alluded to in the preceding remarks, of assuming 30 inches for the barometric zero at the level of the sea.

The state of the wind in the valley has not been noted, but the fall of rain is recorded with precision, the average amount being about 50 inches.

The series for *Simla* does not comprehend an entire year, and will not therefore furnish averages. The temperature appears to be that of the interior of the house.

Abstract of Meteorological Register kept at Simla, from the 15th May to the 21st November, 1834. By S. M. BOULDERSON, Esq.

Month.	Barometer at 32°.			Day tide.	Thermometer.		
	10 A. M.	4 P. M.	10 P. M.		10 A. M.	4 P. M.	10 P. M.
May,	23.816	.773	.802	.033	74.0	74.5	73.9
June, .....	.784	.723	.774	.061	70.8	70.6	69.2
July, .....	.794	.729	.784	.065	67.4	67.6	66.9
August, .....	.827	.777	.803	.050	68.5	67.9	65.9
September, .....	.908	.832	.872	.076	67.2	66.0	65.4
October,	24.013	.942	.978	.071	62.6	62.7	58.2
November, .....	.092	.041	.073	.051	57.1	57.5	54.1

The range at 7½ A. M. is also given for the month of May, the mean of the barometer being 23.798; which proves the regularity of the nocturnal tide in these elevated regions.

I must, for want of time, leave to a future opportunity the further analysis of the above tables, and the deduction of general average results from the *Calcutta* tables for the past five years. Meantime, I will conclude with the insertion of a table of the temperature at *Kandy* in *Ceylon*, obligingly contributed by Captain ORD, R. E., and a note on the temperature of the *Brahmaputra* in *Assam*, compared with that of the air at the same time by Dr. W. GRIFFITH.